Grade 6 Social Studies Module 2

World History and Geography:
Ancient Greece and Ancient Rome

Module Goal

The goal of this module is to provide information that will help educators increase their knowledge of grade-appropriate social studies concepts, knowledge, and skills to support effective planning or modification of their existing social studies instructional units for students with significant cognitive disabilities. The module includes important concepts, knowledge, and skills for the following instructional units:

- Ancient Greece (c. 800–300 BC/BCE)
- Ancient Rome (c. 500 BC/BCE-500 AD/CE)

Module Objectives

The content module supports educators' planning and implementation of instructional units in social studies by:

- Developing an understanding of the concepts and vocabulary that interconnect with information in the module units.
- Learning instructional strategies that support teaching students the concepts, knowledge, and skills related to the module units.
- Discovering ways to transfer and generalize the content, knowledge, and skills to future school, community, and work environments.

The module provides an overview of the social studies concepts, content, and vocabulary related to World History and Geography: Ancient Greece (c. 800–300 BC/BCE) and Ancient Rome

(c. 500 BC/BCE–5 AD/CE) and provides suggested teaching strategies and ways to support transference and generalization of the concepts, knowledge, and skills. The module does not include lesson plans and is not a comprehensive instructional unit. Rather, the module provides information for educators to use when developing instructional units and lesson plans.

The module organizes the information using the following sections:

- Social Studies Academic Standards and Related Alternate Assessment Targets and Underlying Concepts;
- II. Connecting Concepts;
- III. Vocabulary and Background Knowledge information, including ideas to teach vocabulary;
- IV. Overview of Units' Content;
- V. Universal Design for Learning (UDL) Suggestions;
- VI. Transfer and Generalize Concepts, Knowledge, and Skills;
- VII. Concepts and Vocabulary Multi-Age Planning: Grades Six through Eight; and
- VIII. Tactile Maps and Graphics.

Section I

Social Studies Academic Standards and Related Alternate Assessment Targets and Underlying Concepts

It is important to know the expectations for each unit when planning for instruction. The first step in the planning process is to become familiar with the identified academic standards and related Alternate

Assessment Targets (AATs) and Underlying Concepts (UCs) covered in the module. The AATs are specific statements of knowledge and skills linked to the grade-specific social studies academic standards. The UCs are basic key ideas or concepts linked to specific AATs. UCs are a basis for developing a more complex understanding of the knowledge and skills represented in the AAT and should not be taught in isolation. It is important to provide instruction on the AAT along with the UC in order to move toward acquisition of the same concepts, knowledge, and skills.

Table 1 includes the grade 6 academic standards and related AATs and UCs addressed by this module. While only the academic standards targeted for the Tennessee Comprehensive Assessment Program/Alternate (TCAP/Alt) are included, instruction on additional standards will aid in student understanding. Standards that are not included still represent important content for students to master. Therefore, the AATs and UCs included in the table do not cover all of the concepts that can be taught to support progress and understanding aligned to the standards.

The Tennessee Social Studies Academic Standards include the following codes:

C-Civics H-History E-Economics P-People G-Geography TN-Tennessee

Table 1. Social Studies Academic Standards and Related AATs and UCs 1

Academic Standards	Alternate Assessment Targets (AAT)	Underlying Concepts (UC)	
Ancient Greece (c. 800–300 BC/BC	Ancient Greece (c. 800–300 BC/BCE)		
6.47 Explain how the geographical location of ancient Athens and other city- states contributed to their role in maritime trade, their colonies in the Mediterranean, and the expansion of their cultural influence. (CEGH)	Explain how the location of ancient Athens affected maritime trade across the Mediterranean Sea.	Identify countries likely to trade with Athens by sea using a historical map.	
6.49 Explain how the development of democratic political concepts in ancient Greece lead to the origins of direct democracy and representative democracy, including: the "polis" or citystate, civic participation and voting rights, legislative bodies, constitution writing, and rule of law. (CHP)	Identify an element of direct democracy in Ancient Greece.	Identify why rules are important in a society.	

Academic Standards	Alternate Assessment Targets (AAT)	Underlying Concepts (UC)	
Ancient Rome (c. 500 BC/BCE-500	Ancient Rome (c. 500 BC/BCE-500 AD/CE)		
6.61 Explain how the geographical location of ancient Rome contributed to the shaping of Roman society and the expansion of its political power in the Mediterranean region and beyond. (EGP)	Explain how having access to the sea or agriculturally productive land contributed to Roman society (e.g., supported a large society).	Identify how the creation of roads helped build the Roman Empire.	
6.63 Describe the government of the Roman Republic and its contribution to the development of democratic principles, including the rule of law (a written constitution), separation of powers, checks and balances, representative government, and civic duty. (CHP)	Identify a democratic principle of the Roman Republic related to today's government in the United States (e.g., citizens choose representatives to govern on their behalf, separation of powers, and a written constitution).	Identify why the opportunity to vote is important to a citizen.	
6.70 Describe the contribution of Roman civilization to law, literature, poetry, art, architecture, engineering, and technology. Include the significance of Coliseum, Circus Maximus, roads, bridges, arches, arenas, baths, aqueducts, central heating, plumbing, and sanitation. (CHP)	Compare the importance of architecture or engineering contributions of ancient Rome to engineering achievements in today's modern day world (i.e., roads, aqueducts, or bridges).	Identify a feature of today's society related to achievements of Ancient Rome (e.g., roads, aqueducts, or bridges).	

¹ Instruction is not intended to be limited to the concepts, knowledge, and skills represented by the AATs and UCs listed in Table 1.

Section II

Connecting Concepts

Grade-level social studies content includes Connecting Concepts, concepts that connect information between different people, places, events, and time periods. Helping students make connections between these types of concepts and new content information supports comprehension of the concepts, knowledge, and skills as well as transference and generalization (see Section VI: Transfer and Generalize Concepts, Knowledge, and Skills for more information). Connecting Concepts that are specific to this module connect to content across units in this module as well as across modules and across grades.

A Connecting Concept is a common link between multiple standards and units of study. The Connecting Concepts, by being revisited and linked to multiple units of study, become a strong foundation of understanding and support students in learning new concepts. For example, understanding how geography affects where people live, trade, and travel is a Connecting Concept that applies to the Mesopotamian civilization's way of life, Athenian maritime trade, the expansion of Roman political power, etc. Some Connecting Concepts may apply across multiple content areas and instructional emphases (e.g., A region's need for water and the engineering solution of an aqueduct might be studied in science.).

Teaching Connecting Concepts

The following strategies, pulled from the principles of UDL (CAST, 2011), are ways in which to teach Connecting Concepts to help students understand the concepts and make connections between different curricular content. During instruction, highlight:

- patterns (e.g., Highlight the similarities between the democratic principles of the United States,
- ancient Greece, and ancient Rome.),
- critical features (e.g., Provide pictures of achievements of ancient Rome.),
- big ideas (e.g., Discuss how the roads ancient Romans built helped spread their power over many territories.), and
- relationships (e.g., Make the connection between architecture in ancient Rome and similar architecture found in modern buildings, bridges, and roads.).

For example, when learning about the development of architecture and engineering, illustrate the relationship between ancient Roman contributions and modern achievements by matching pictures and highlighting the common features (e.g., arches used in bridges).

Following are **Connecting Concepts** for this Content Module: World History and Geography: Ancient Greece (c. 800–300 BC/BCE) and Ancient Rome (c. 500 BC/BCE–5 AD/CE).

Students understand:

- how to think spatially and use a variety of maps and map tools (e.g., compass rose, legend)
- how to interpret physical and political features on a variety of maps
- how geography affects where people live, trade, and travel
- how geography affects growth of a society
- how geography affects a region's economy
- the importance of land and sea routes on trade, migration, and colonization
- the development of democratic principles
- the structure and purpose of government and its relationship to democracy and citizenry
- the effect of new developments, technology, and inventions on people's lives in the past and present
- how people and places affect art, architecture, and literature
- how art, architecture, and literature affect people's lives

Connecting Concept Resources:

Grant Wiggins talks about "big ideas" in this article. http://www.authenticeducation.org/ae-bigideas/article.lasso?artid=99

This site provides examples and printable versions of graphic organizers for social studies that can be modified to meet students' needs.

https://walch.com/samplepages/050078.pdf

Teaching History has a video explaining historical thinking to teachers and an article about how to adapt documents for the classroom.

- http://teachinghistory.org/historical-thinking-intro
- http://teachinghistory.org/teaching-materials/teaching-guides/23560

Education Resources Information Center provides a story and activity, Gram's Trunk, that motivate students to investigate history (K-8th grades). http://eric.ed.gov/?id=ED466415

The American Historical Association shares the "five C's of historical thinking." https://www.historians.org/publications-and-directories/perspectives-on-history/january-2007/what-does-it-mean-to-think-historically

Section III

Vocabulary and Background Knowledge

Vocabulary is critical to building an understanding of social studies concepts, knowledge, and skills. The vocabulary words that students gain through experiences provide ways for students to comprehend new information (Sprenger, 2013). Students can better understand new vocabulary when they have some background knowledge to which they can make connections. In addition, learning new vocabulary increases students' background knowledge. Therefore, it is important to teach vocabulary (e.g., maritime trade) purposely when introducing new concepts, knowledge, or skills (e.g., geographical location of ancient Athens and the way the Athenians traded and traveled). It is also important to teach vocabulary in the context of the specific content (e.g., teach the term "aqueducts" in the context of ancient Rome).

This module includes two types of vocabulary words, both equally important to teach. The first type, general vocabulary words, labels groups of words that address different people, places, events, and time periods. For example, understanding the meaning of the word "govern" helps students to connect many different contexts in which someone governs, such as in a school, in a town, in ancient Greece, or in ancient Rome. The second type of vocabulary word, specific content words, represents groups of words that address a specific person, group of people, place, event, or time period. Specific content words are typically proper nouns, such as Circus Maximus, and connect to general words (e.g., architecture). Providing instruction on general words provides background knowledge when introducing corresponding or related specific words.

Key Vocabulary for Instructional Units

Table 2 and Table 3 contain lists of key general vocabulary words and specific content words that are important for the units in this module. Each general vocabulary word should be taught to the student using a student-friendly description of what the word means, an example of the word, and a historical example, as appropriate.

Teach the specific content vocabulary using a student-friendly description of the word meaning and a possible connection to a general vocabulary word. Do not teach memorization of vocabulary words;

instead place emphasis on understanding the word. For example, a student should be able to give examples of what representatives do rather than defining the term "representative."

Table 2. General Vocabulary Words

General Vocabulary – words that generalize to different people, places, events, and time periods. Describe the word and provide examples (e.g., When you govern a group of people, you lead them. Our principal governs the school.).

 achievements 	• civic	 legislative bodies 	• roads
 agriculture 	 civic duty 	 literature 	 rule of law
 ancient 	 colony 	 maritime 	rules
 aqueducts 	 constitution 	 modern day 	sanitation
• arches	 democracy 	peasants	• sea
 architecture 	 direct democracy 	 plumbing 	 separation of powers
• arenas	 engineering 	poetry	• ship
• art	 geographical location 	on • political power	• slaves
• baths	• govern	region	• society
 bridges 	 government 	 representative 	 technology
 central heating 	harbors	 representative 	• trade
		democracy	
 checks and 	 historical map 	rights	• vote
balances			
• citizen	• law		

Table 3. Specific Content Words

Specific Content Words – words that are specific to content (e.g., person, place, event).

Describe the word and make the connection to a Connecting Concept when possible (e.g., Athens is a city in Greece. It was one of the important cities in ancient Greece.).

 ancient Greece 	 Consuls 	Roman Empire
 ancient Rome 	• Greece	Roman Republic
 Assembly 	 Mediterranean 	Rome/Roman
• Athens	 Mediterranean Sea 	• Senate
Circus Maximus	 Patricians 	Twelve Tables
city-state/polis	 Plebeians 	 United States
• Coliseum		

Ideas to Support Vocabulary Learning

Table 4 includes ideas and examples for teaching vocabulary in a way to build conceptual understanding of the words.

Table 4. Ideas to Teach Vocabulary Effectively (Marzano, 2004)¹

Ideas	Examples
Explain, describe, and/or give examples of the vocabulary word rather than formal definitions.	Describe and provide an example of harbors, "A harbor is a deep place in the ocean near the shore where it is safe for ships to come. Ancient Athens had many harbors where ships could get close to the shore. This helped the people of Athens travel and trade by sea."
Have students restate the vocabulary word in their own words. Take this opportunity to help students connect new vocabulary, especially general vocabulary, to prior knowledge.	Have students tell what maritime trade means. Help students think of other types of trade that they have studied or experienced. Support students by providing pictures, asking questions that can be answered with yes/no responses, one word responses, phrases, and/or with use of an alternative and augmentative communication (AAC) system.
Have students represent vocabulary words in a variety of ways (e.g., pictures, symbols, graphic organizers, or pictographs).	Have students practice vocabulary words using vocabulary foldables (see Figure 1). Provide support as needed (e.g., help from peer or adult to read, enlarged images or fonts, using AAC, etc.).
Provide multiple exposures to vocabulary words in a variety of ways. This does not suggest mass trials, but rather distributed trials in different ways or contexts. Reference http://projectlearnet.org/tutorials/learning_trials.html for information on learning trials.	 Expose students to words by incorporating vocabulary into daily activities. For example, introduce the concept of rules when reviewing classroom rules; review democracy when voting for a book to read; mention laws when discussing the community.
	 Create a word wall that includes pictures illustrating vocabulary related to ancient Athens and ancient Rome.
	 Have students create laws for the classroom and vote for or against the laws.
	 Have students review online vocabulary that includes images and recorded definitions (e.g., https://quizlet.com/136336919/ancient-rome-flash-cards).
Ask students to discuss the vocabulary words with each other.	 Have students use their preferred mode of communication to provide content words to answer questions.

Ideas	Examples
	 Have students share representations (e.g., pictures) of content words to provide information.
Play vocabulary word games with students.	 Have each student take a turn shooting a basketball or moving a space on a game board each time they match a vocabulary term to its description/definition.
	 Sort vocabulary words paired with images into ancient Rome achievements or current versions of the achievements (e.g., Roman bath and a bathtub). Have students select the word using their communication system (e.g., dual switch).
Have students watch a dramatization or have them act out the vocabulary term.	Have students act out words related to Roman Republic democracy (e.g., citizen, patrician, plebeian, Senate, Tribunes, Consuls, Assembly).

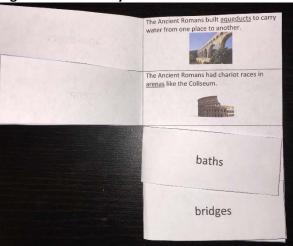
¹ Refer to Section V, Universal Design for Learning (UDL) Suggestions for additional instructional strategies.

Vocabulary Example

To build understanding of the specific content words related to ancient Rome architecture and engineering, have students use a vocabulary foldable (see Figure 1). Educators may support, modify, or adapt steps as needed for individual students. For example, one student may use large print; another student may work with a partner or an adult; another student may use one printed on cardstock with paper clips on each tab to help with unfolding; and another student may complete a digital version (e.g., click on word and it disappears revealing the sentence and picture). Two National Center and State Collaborative (NCSC) resources are available and may prove helpful for vocabulary instruction:

- Use systematic instruction as described in the NCSC Instructional Guide. https://wiki.ncscpartners.org
- Reference ideas in the NCSC Vocabulary and Acquisition Content Module. https://wiki.ncscpartners.org

Figure 1. Vocabulary Foldable



Vocabulary Resources:

Vocabulary.com provides explanations of words using real-world examples. Once signed in, an educator can create word lists for students. http://www.vocabulary.com/

Text Project provides Word Pictures that are free for educators to use. It includes word pictures for core vocabulary and various content areas including science and social studies. This link will take you to the Word Pictures page where you can select the category of words you want to use. http://textproject.org/classroom-materials/textproject-word-pictures/

Education Place provides a variety of graphic organizers to be used for vocabulary instruction that are free to print and copy. http://www.eduplace.com/graphicorganizer/index.jsp

Directions and link to creating an online memory game that can be used for vocabulary or concepts. https://www.youtube.com/watch?v=XwNAX26J oQ and http://matchthememory.com/

This site has a social studies glossary for 6th grade including recorded definitions of each term. http://www.eduplace.com/kids/socsci/books/applications/eglossary/eg_popup.html?grade=6CA

Section IV

Overview of Units' Content

This section of the module contains additional content and references to support educators' understanding and instruction of the instructional units. The information reflects important content to address the AATs and to build students' knowledge, skills, and abilities; however, it is not exhaustive and should be expanded upon as needed.

Unit – Ancient Greece (c. 800–300 BC/BCE): Students analyze the geographic, political, economic, social, and religious structures of the civilizations of ancient Greece.

Content:

• Geographic location of Athens and other Greek city-states (e.g., Sparta, Olympia) on historical map

- Geography of Athens and surrounding area (e.g., coastal area, natural harbors) and its contribution to maritime trade and colonies in the Mediterranean region
- Importance of ancient Athenian maritime trade in spreading cultural influence
- City-states (polis) in ancient Greece
- Reasons for rules in a society
- Ancient Greek form of democracy and its key elements:
 - o civic participation and voting rights
 - legislative bodies
 - o constitution writing
 - o rule of law

Unit – Ancient Rome (c. 500 BC/BCE–500 AD/CE): Students analyze the geographic, political, economic, social, and religious structures of the civilizations of ancient Rome.

Content:

- Location of ancient Rome on a historical map
- The effect of Rome's geographical location on its society and expansion of its political power
- Benefits of roads for the Roman Empire
- The Roman Republic:
 - o rule of law
 - o separation of powers
 - o checks and balances
 - o representative government
 - o civic duty
- Comparison of United States' democratic principles to those of the Roman Republic
- Importance of voting
- Contribution of Roman civilization to
 - o law
 - o literature
 - o poetry
 - o art
 - o architecture
 - o engineering
 - o technology
- Significance of the
 - o Coliseum
 - o Circus Maximus
 - o roads
 - o bridges
 - o arches
 - o arenas
 - o baths
 - o aqueducts
 - o central heating
 - o plumbing
 - o sanitation
- Current use of ancient Roman achievements (e.g., roads, aqueducts, bridges)

Unit Content Resources:

General Information on Ancient Greece

BBC Bitesize has information on ancient Greece. http://www.bbc.co.uk/education/topics/z87tn39

Geography of Ancient Greece

- EduPlace provides a map with information on ancient Greece, Athens, and trade.
 https://www.eduplace.com/kids/socsci/ca/books/bkf3/imaps/AC_11_351_grtrade/AC_11_351_grtrade.html
- This site provides printable maps of ancient Greece.
 http://aurorak12.org/gateway/academics/Social%20Studies%20Dept.%20Pages/documents/ANCIE
 NTGREECEPDF.pdf

Democracy in Ancient Athens

- This site provides information on the democracy of ancient Greece.
 http://www.bbc.co.uk/schools/primaryhistory/ancient greeks/athens/
- Ducksters provides information on the government of ancient Greece.
 http://www.ducksters.com/history/ancient greek government.php
- This site provides information on democracy beginning in Athens. http://quatr.us/government/democracy.htm

Lesson Ideas for Ancient Greece

This site contains unit materials for ancient Greece (scroll down to ancient Greece).
 http://nsms6thgradesocialstudies.weebly.com/unit-information.html

General Information on Ancient Rome

- Time Maps has an interactive map showing Rome at different points in history. http://www.timemaps.com/history/ancient-rome-30bc
- National Geographic Kids provides facts and photographs about ancient Rome. http://www.ngkids.co.uk/history/10-facts-about-the-ancient-Romans

Geography of Ancient Rome

- This site provides information and a narrated slide show overview of ancient Rome. http://mrdowling.com/702rome.html
- This site has an article on the founding of Rome set up as a worksheet for students to answer questions after short paragraphs of information.
 https://docs.google.com/file/d/0B3CgyN7DJyV3RkpjWGNLcXFENE0/edit?pref=2&pli=1
- Education Place has information and essential questions on ancient Rome.
 https://www.eduplace.com/ss/socsci/ca/books/bkf3/reviews/pdfs/LS 6 13 01.pdf

Government in Ancient Rome

- Study.com has two videos that explain the political structure of the Roman Republic.
 - o http://study.com/academy/lesson/rise-of-the-roman-republic-summary-of-events.html#lesson
 - o http://study.com/academy/lesson/the-roman-republic-rise-formation-political-structure.html
- This site provides information on the Roman Republic. http://romangov.weebly.com/roman-republic.html

Achievements of Ancient Rome

- Mr. Donn has information on roads built by the Romans. http://rome.mrdonn.org/romanroads.html
- Scholastic has information on art and architecture of ancient Rome. http://www.scholastic.com/browse/article.jsp?id=3753873
- Khan Academy provides information and photographs of ancient Rome art and architecture. https://www.khanacademy.org/humanities/ancient-art-civilizations/roman/beginners-guide-rome/a/introduction-to-ancient-roman-art
- Mr. Donn provides presentations on Roman Architecture, Art, and Engineering. http://rome.mrdonn.org/powerpoints-architecture.html
- Ancient History Encyclopedia provides information on Roman engineering. http://www.ancient.eu/Roman_Engineering/
- This Weebly provides a concise summary of the influence of Roman civilization on contemporary art, literature, language, engineering, architecture, religion, and law. http://nsms6thgradesocialstudies.weebly.com/the-legacy-of-rome.html

Lesson Ideas for Ancient Rome

- This site provides unit materials for ancient Rome (scroll down to ancient Rome).
 http://nsms6thgradesocialstudies.weebly.com/unit-information.html
- History Teacher has assignments that include maps, readings, graphic organizers, and a slide show on ancient Rome. http://www.historyteacher.net/EuroCiv/EuroCiv-Topics/EuroCiv-RomanWorld.htm
- School Rocks has several lesson plans on ancient Rome. http://schoolrocks.org/unit_on_rome.htm

Section V

Universal Design for Learning (UDL) Suggestions

The three principles of UDL guide development of instruction, instructional materials, and assessments to provide the widest range of students with access to learning. Students with significant cognitive disabilities, especially students with visual and/or hearing impairments and students with complex communication needs, require additional scaffolds, adaptations, and modifications to access content and support learning. The three principles of UDL establish a framework for providing these. UDL provides guiding principles to create instructional materials and activities in a flexible manner to address the needs of different types of learners. Additionally, the flexibility allows for further individualization.

Table 5 provides strategies for the UDL Principle I, **Multiple Means of Representation**: presenting information in a variety of ways to address the needs of different types of learners.

Table 6 provides strategies for the UDL Principle II, **Multiple Means of Action and Expression**: providing a variety of ways for students to interact with the instructional materials and to demonstrate understanding. Table 7 provides strategies for the UDL Principle III, **Multiple Means of Engagement**: providing a variety of ways to engage and motivate students to learn.

These strategies can assist all students in understanding the basic concepts. Some of the examples include adaptation ideas for students with vision, hearing, and/or physical limitations. Each example has a code to indicate when it includes specific adaptation ideas for these needs:

V = visually impaired (low vision, blind, or deaf-blind)

H = hearing impaired (deaf, hard of hearing, or deaf-blind)

P = physical disability (limited use of hands)

Table 5. Instructional strategy ideas using the UDL Principle: Multiple Means of Representation

Multiple Means of Representation		
Strategies	Examples	
Introduce information through a multi-sensory approach (e.g., auditory, visual, tactile).	Create a tactile map showing the geographic features of Greece and the surrounding areas. Refer to Section VIII. Tactile Maps and Graphics and view this video clip — https://www.youtube.com/watch?v=kpvzEqioXbw&index=4&list=PLK-fetQX3thAmezvcM_elzpkHN6kKDeQo — for tips on creating a tactile map. V Present maps and photos of ancient Rome (e.g., http://www.eduplace.com/kids/socsci/ca/books/bkf3/imaps/AC_13_43_2_7hills/AC_13_432_7hills.html). Help students build an aqueduct (e.g., http://www.oercommons.org/courses/do-as-the-romans-construct-anaqueduct-2/view). Have students taste the foods that the ancient Greeks traded (e.g., line of the state of	
Model content through pictures, dramatization, videos, etc.	olives, figs, cheese, honey). Provide images of ancient Roman architecture, engineering, art, and daily life of the Romans (e.g., http://ancientvine.com/index.html). Show videos about ancient Greece and Rome (e.g., https://www.youtube.com/watch?v=5FVpL4ma8nQ , https://www.youtube.com/watch?v=4JWGBMAgjqs , and https://www.youtube.com/watch?v=eQlwFiE0Lsw).	
Present information using modified graphic organizers (e.g., simplified organizers with pictures).	Use a KWHL to help students make connections between what they already Know, What they want to know, How they can find out, and finally, what they Learn. (slide show explaining the use of the KWHL chart and how it was made accessible for students with significant cognitive disabilities: http://www.cehd.umn.edu/nceo/teleconferences/tele14/CourtadeFlowers.pdf). V/H/P Complete a graphic organizer comparing the Roman Republic system of checks and balances to the current United States system (e.g., http://www.historyteacher.net/EuroCiv/Resources/chart-RomanRepublicanGovt.pdf).	
Provide appropriate and accessible text on the	Have students complete a technology graphic organizer showing what technologies they have in their homes (e.g., http://edsitement.neh.gov/lesson-plan/thomas-edisons-inventions-1900s-and-today-new-you#sect-activities). Paraphrase information from a web page (e.g., http://textcompactor.com/)	

content for students to	Provide digital text which is read to the student (e.g.,
listen to or read.	http://bookbuilder.cast.org/view.php?op=view&book=94324&page=1
	and
	http://bookbuilder.cast.org/view.php?op=view&book=94187&page=1)
	and students can use adapted mouse to turn pages (e.g.,
	http://bookbuilder.cast.org/view.php?op=view&book=14532&page=1)
	V/P
	Have students read information about ancient Rome (e.g.,
	http://historylink101.com/2/Rome/index.htm). Use a screen reader. V
Teach information using songs.	Have students listen to a song about ancient Greece (e.g., https://www.youtube.com/watch?v=TlcbfyvN5EM).

Table 6. Instructional strategy ideas using the UDL Principle: Multiple Means of Action and Expression

Multiple Means of Action and Expression		
Strategies	Examples	
Use assistive technology to allow students to interact with the instructional materials and content.	Create single-switch activated activities using Microsoft PowerPoint or other slide presentation software. (e.g., http://www.ohioslha.org/pdf/Convention/2008%20Handouts/CL1-Martin-Browne.pdf). P Have students use an adaptive switch to read pre-recorded information related to democracy in ancient Greece and ancient Rome or to access information on an interactive web site (e.g., http://carlos.emory.edu/ODYSSEY/GREECE/home.html and http://mystery-productions.com/hyper/Hypermedia 2003/Miller/AM hypermedia/Artifact/go.htm). Add large paper clips to pages of the text book to assist students with fine motor needs in turning the pages. P	
Present instructional materials in a manner that provides optimal access.	Place printed text and pictures on a slant board. V/P Match democratic principles of ancient Rome to those of present day America using hook and loop tape. P When there is not an established sign for a person, place, or event, finger spell it and then create a sign that is meaningful to students. Use the newly created sign with consistency. H Have students use a reading guide that has a window to view only one line of text at a time. V	
Provide voice output devices for students to select the correct answer.	Record "yes" and "no" on a dual voice output switch and ask students yes and no questions about content. V/P Have students use three switches with generic labels (e.g., a, b, c; red, blue, green; or three different textures) to which they listen and then select the correct answer. V/P	

Provide simulation activities.	Have students participate in a simulation of an ancient democracy (e.g., http://www.classroomzoom.com/lessons/374/simulation-ancient-democracy).
	Have students create Roman mosaics with paper or online (e.g., http://gwydir.demon.co.uk/jo/mosaic/easy.htm).
	Have students explore a drag-and-drop activity regarding Roman artifacts (e.g., http://downloads.bbc.co.uk/schools/primaryhistory/games/digitup/romans/digitup.swf).
Create a picture, three- dimensional model, or digital graphic organizer.	Have students complete a comparison graphic organizer (e.g., double bubble map), comparing ancient Greece and ancient Rome (e.g., http://thirdgradethinkers8.blogspot.com/2012/01/using-thinking-maps-to-comparecontrast.html).

Table 7. Instructional strategy ideas using the UDL Principle: Multiple Means of Engagement

Multiple Means of Engagement		
Strategies	Examples	
Provide a schedule and visual timer.	Have students use a tactile schedule (e.g., http://www.autismclassroomresources.com/visual-schedule-series-object-schedules_25/). V/P	
	Have students use a mini schedule or a first-then schedule for each content instructional session.	
	Have students select the next activity on the schedule and set the timer or visual timer to indicate how long the student has before a break.	
Vary the challenge and amount of information presented at a time.	Begin instruction by presenting basic information and providing connections to familiar situations (e.g., voting in a school election). Provide additional information (e.g., U.S. democracy) and begin delving deeper into the standards (e.g., ancient Roman democratic principles and how they compare to the laws of U.S. democracy).	
Make connections to topics or activities that are motivating.	Have students view information about ancient Rome in comic format (e.g., http://ngkids.jollydev.com/did-you-know/Max in the Colosseum) and/or create their own comics about ancient Rome or Greece.	
Allow choices as possible.	Allows students to choose where to sit or a sensory item to hold during instruction.	
	Have students choose designs while creating an ancient Greek pot either on paper, a craft pot, or a digital version (e.g., http://www.schoolsliaison.org.uk/kids/greecepot.htm). P	
Provide opportunities to work collaboratively with peers.	Provide opportunities for students to work in a general education classroom with peers when learning about life as a child growing up in ancient Greece (e.g., http://www.bbc.co.uk/schools/primaryhistory/ancient greeks/growing up in greece/).	

Teach student self- regulation skills.	Provide students communication symbols to request a break or express feelings and model how to use them appropriately.
	Develop and provide a cue to help students know when to request a break or an activity that calms them.

UDL Resources

The National Center on Universal Design for Learning has a plethora of information on UDL and examples and resources.

www.udlcenter.org

Symbaloo is a free online tool that allows an educator to create bookmarks using icons. It is easy to create and allows an educator to provide students links to sources of information that can be used for specific instructional units.

www.symbaloo.com

This site provides a brief description of Symbaloo and multiple ways to use the online tool. https://www.theedublogger.com/2014/04/09/11-ways-to-use-symbaloo-in-the-classroom/

Perkins School for the Blind provides information on using tangible symbols to increase communication, create personal schedules, and provide choices.

http://www.perkinselearning.org/videos/webcast/tangible-symbols

Perkins School for the Blind provides information on using an object schedule system. http://www.perkinselearning.org/videos/teachable-moment/object-schedule-systems

Autism Classroom Resources provides information on first-then schedules. http://www.autismclassroomresources.com/visual-schedule-series-first-then/

This site has instructions for several graphic organizers that can be used in social studies. http://www.robeson.k12.nc.us/site/handlers/filedownload.ashx?moduleinstanceid=59303&dataid=872 http://www.robeson.k12.nc.us/site/handlers/filedownload.ashx?moduleinstanceid=59303&dataid=872 http://www.robeson.k12.nc.us/site/handlers/filedownload.ashx?moduleinstanceid=59303&dataid=872 http://www.robeson.k12.nc.us/site/handlers/filedownload.ashx?moduleinstanceid=59303&dataid=872 http://www.robeson.k12.nc.us/site/handlers/filedownload.ashx?moduleinstanceid=59303&dataid=872 http://www.robeson.k12.nc.us/site/handlers/filedownload.ashx?moduleinstanceid=59303&dataid=872 http://www.robeson.k12.nc.us/site/handlers/filedownload.ashx?moduleinstanceid=59303&dataid=872 http://www.robeson.k12.nc.us/site/handlers/filedownload.ashx?moduleinstanceid=59303&dataid=872 http://www.robeson.k12.nc.us/site/handlers/filedownload.ashx?moduleinstanceid=59303&dataid=872 http://www.robeson.k12.nc.us/site/handlers/filedownload.ashx http://www.robeson.k12.nc.us/site/handlers/filedownload.ash

Section VI

Transfer and Generalize Concepts, Knowledge, and Skills

For learning to be meaningful for all students, including students with significant cognitive disabilities, it is important to intentionally make connections to future content, real-world application, and college and career readiness skills. For example, learning about democracy in ancient Athens, ancient Roman, and current U.S. democracy prepares students for citizenship rights and responsibilities. Additionally, the instruction of social studies concepts, knowledge, and skills may be the catalyst to developing other areas such as needed communication skills, reading/listening comprehension, age-appropriate social skills, independent work behaviors, and skills in accessing support systems. Table 8 provides instructional ideas to help transfer and generalize concepts, knowledge, and skills and suggests opportunities to embed other skills into instruction.

Table 8. Transfer and Generalization Ideas

Area	Instruction	Opportunity to Embed Skills
Communication	While teaching vocabulary, make connections to real-life or future opportunities to use the words (e.g., understanding technology, architecture, engineering, etc., will help students understand the terms in future work environments as well as family members' conversations about work).	Use the context of the content area instruction to increase language skills, work on articulation, or access alternative and augmentative communication (AAC) systems.
Reading and Listening Comprehension	Provide information through reading books and articles on ancient Greece and ancient Rome when working on reading/listening comprehension.	Provide practice on communication skills when students are answering questions about the book or article. Provide practice on crossing midline to turn pages on an adapted book (e.g., thick tabs added to pages).
Age-Appropriate Social Skills	Make connections between the Connecting Concepts and real-life experiences showing how students can independently find a needed bus route (e.g., how to think spatially to use a map).	Provide opportunities to work alongside same-age peers during social studies instruction to practice ageappropriate social skills.
Independent Work Behaviors	Encourage and reinforce independent completion of tasks to build independent work skills (e.g., completing a graphic organizer).	Have students self-monitor when completing tasks. Have students work on range of motion while working on independent tasks.
Skills in Accessing Support Systems	Encourage students to ask appropriately for assistance from peers and adults when working on the content.	Use this time to have the student work on appropriate behavior and communication skills.

Section VII

Concepts and Vocabulary Multi-Age Planning: Grades Six through Eight

Multi-age planning requires that instructional decisions address the span of the grade levels of the students in the class. Recognizing the Connecting Concepts and the General and Specific Vocabulary that apply to multiple units within and across a grade span provides information to teach concepts that build a foundation for specific curricular content (i.e., specific people, places, events, and time periods). This section illustrates the grade-level **Connecting Concepts** and the **General and Specific Vocabulary** across grades six through eight. This view (see Tables 9-13) allows educators of multi-age and multi-grade classrooms to address the same or similar concepts and vocabulary to all students along with the specific curricular content.

Table 9. Physical and Human Geography Concepts and Vocabulary

Physical and Human Geography

Geographical features and the spatial organization of people and places impact different stages in the history of culture and civilization. Maps and other representations of places and regions convey the influence of geography on economic development, discovery, and use of resources by various cultures and civilizations.

culture and civilization. Maps and other representations of places and regions convey the influence of geography		
on economic development, discovery, and use of resources by various cultures and civilizations.		
Grades 6 - 8	Concepts	Vocabulary
AAT: Identify reasons why the region of Mesopotamia is referred to as the Fertile Crescent. (6.8) UC: Use a map to identify a geographical feature in Mesopotamia. AAT: Identify information related to the development of the ancient Israelites (e.g., the location of the migration; reasons for the migration; who led the migration). (6.40) UC: Identify reasons why groups of people may want to migrate from one location to another. AAT: Explain how the location of ancient Athens affected maritime trade across the Mediterranean Sea. (6.47) UC: Identify countries likely to trade with Athens by sea using a historical map. AAT: Explain how having access to the sea or agriculturally productive land contributed to Roman society (e.g., supported a large society). (6.61) UC: Identify how the creation of roads helped build the Roman Empire. AAT: Explain how the travels of Marco Polo contributed to the growth of European trade. (7.45) UC: Identify a reason why trade is important to groups of people. AAT: Identify reasons why European countries were successful in colonizing in North America. (7.71)	 Understand: how to think spatially and use a variety of maps and map tools (e.g., compass rose, legend) how to interpret physical and political features on a variety of maps how geography and climate affect exploration how geography affects where people live, trade, and travel how geography affects growth of a society how geography affects a region's economy the impact of the roads on growth of a society reasons why groups of people migrate from one place to another the importance of explorers, land and sea routes on trade, 	General: agriculture ancient architecture art boundary calendar colony community country culture desert development farm fertile flood hieroglyphics industry irrigation maritime trade migrate/migration papyrus political products region roads route

Physical and Human Geography

Geographical features and the spatial organization of people and places impact different stages in the history of culture and civilization. Maps and other representations of places and regions convey the influence of geography on economic development, discovery, and use of resources by various cultures and civilizations.

• **UC:** Identify countries that colonized North America.

AAT: Identify differences between agriculture in the South and industries in the North. (8.72)

 UC: Identify products manufactured in the North or products grown in the South using a historical resource map. migration, and colonization

- settlers
- slavery
- society
- technology
- trading centers

Specific:

- Asia
- Athens
- Black Sea
- Caspian Sea
- Caucasus Mountains
- Cumberland Gap
- Dead Sea
- Dutch
- Egypt
- England
- Euphrates River
- Europe
- Fertile Crescent
- France
- Giza
- Islamic world
- Israelites
- Jackson Purchase
- Marco Polo
- Mediterranean Sea
- Mesopotamia
- Natchez Trace
- North America
- Persian Gulf
- Portugal
- Pyramids
- Rome
- Sea of Galilee
- Silk Road
- Song Dynasties
- South America
- Spain
- Sphinx
- Tigris River
- Zagros Mountains

Table 10. Culture Concepts and Vocabulary

AAT: Identify how Chinese technology (e.g.,

papermaking, wood-block printing, the compass

Culture

Advancement and growth of human culture and civilization relates to development of literature, the arts, science, mathematics, and engineering in times past and present, and affects how people live in particular places. Grades 6 - 8 Concepts Vocabulary **AAT:** Identify the importance of irrigation, the **Understand: General:** wheel or the sail to the growth of the effect of new agriculture Mesopotamian civilizations (e.g., the invention developments, anatomy of the wheel for transportation in Mesopotamia technology, and aqueduct got people to places they wanted to go quickly). inventions on people's arch (6.12)lives in the past and architecture **UC:** Identify an important use of the wheel present arena in today's world. how people and places army **AAT:** Identify an important use of a system of can affect learning, art writing in the Mesopotamian civilization (e.g., art, architecture, and bath allowed news or ideas to be carried to distant literature belief places without having to rely on a messenger's how learning, art, memory). (6.13) bridge architecture, and **UC:** Identify an important use of print in calendar literature affect today's world. canal people's lives **AAT:** Identify the importance of achievements caravan the relationship of Egyptian civilization (i.e., the invention of a cartography/map building between learning and calendar; architecture and arts, such as the central heating growth/advancement Pyramids and Sphinx at Giza; writingcivilization of societies hieroglyphics; and the invention of paper). the effect of community (6.19)exchanging goods on compass UC: Identify an important use of the people living in continent calendar in today's world. different places (e.g., culture AAT: Identify information related to the new products, development of the ancient Israelites (e.g., the disease location of the migration; reasons for the diseases, etc.) domesticated animals migration; who led the migration). (6.40) reasons people move economy **UC:** Identify reasons why groups of people to different places engineering may want to migrate from one location to importance of leaders exchange another. to guide/affect change gunpowder **AAT:** Compare the importance of architecture or hieroglyphics engineering contributions of ancient Rome to invention engineering achievements in today's modern irrigation day world (i.e., roads, aqueducts, or bridges). king/kingdom (6.70)law **UC:** Identify a feature of today's society related to achievements of Ancient Rome leader (e.g., roads, aqueducts, or bridges). literature **AAT:** Identify a relationship between the growth mathematics of a kingdom and the development of culture metal-smithing and learning in West or North Africa (7.13) migrate UC: Match the growth of a community to an papermaking increase in the number of schools. papyrus

plow

plumbing

Culture

Advancement and growth of human culture and civilization relates to development of literature, the arts, science, mathematics, and engineering in times past and present, and affects how people live in particular places.

or gunpowder) helped people during the Song Dynasties. (7.23)

• **UC:** Identify an important use of the compass in today's world.

AAT: Identify how advances in science, mathematics or map building helped people during the Renaissance. (7.48)

• **UC:** Identify a reason why learning new things is important.

AAT: Identify an effect of the exchange of products (e.g., potatoes, tomatoes, or corn) between the Americas and the world. (7.74)

 UC: Identify important agricultural products (e.g., potatoes, tomatoes, or corn) exchanged between people living in different places.

- poetry
- print
- product
- record keeping
- roads
- route
- sail
- salt
- sanitation
- science
- slavery
- sphinx
- system of writing
- technology
- trade
- transportation
- wheel
- wood-block printing

Specific:

- Abraham
- Americas
- Ancient Rome
- Canaan
- China/Chinese
- Circus Maximus
- Coliseum
- Egypt
- Europe
- Ghana Kingdom
- Israelites
- Jenne
- Johann Gutenberg
- Leonardo da Vinci
- Mali Kingdom
- Mesopotamia
- Michelangelo
- Moses
- New World
- North Africa
- North America
- Pyramid at Giza
- Renaissance
- Song Dynasties
- Songhai Kingdom

Culture		
Advancement and growth of human culture and civilization relates to development of literature, the arts, science, mathematics, and engineering in times past and present, and affects how people live in particular places.		
		Sphinx at GizaTimbuktuWest AfricaWilliam Shakespeare

Table 11. Economics Concepts and Vocabulary

Economics

Human and physical capital, natural resources, and technology on a local and global scale impact production, distribution, and consumption of goods and services. Decisions about how to use resources influence the welfare of individuals and societies.

of individuals and societies.		
Grades 6 - 8	Concepts	Vocabulary
AAT: Identify the importance of trading goods for the development of cities (e.g., Timbuktu) in West or North Africa. (7.16) UC: Match the growth of a community to an increase in commerce and trade. AAT: Identify ways agriculture or trade helped people during the Song Dynasties. (7.22) UC: Match an increase in farmland to an increase in food production. AAT: Identify a sequence of events that led to peasants becoming a merchant class. (7.41) UC: Identify why a successful community needs many people who can do different jobs. AAT: Identify events associated with the discovery of gold in California (e.g., people traveled to California; the population of California grew; development of new mining techniques). (8.63) UC: Identify a change to a community that results from the discovery of a nearby natural resource (e.g., gold, coal or oil).	 Understand: basic economics types of goods and services the importance of trading/exchanging goods and services how goods and services are exchanged reasons people move to and/or leave places benefits, reasons, and ways groups cooperate types of economies and the effects of change in an economy (e.g., jobs, where people live, what they spend money on, etc.) how natural resources affect a community 	General: agriculture banks camel caravan city coal commerce/commercial community economy family farm/farmer gold goods guild jobs labor lord merchant/merchant class mining/miners natural resource oil peasants rice school services state technology town trade Specific: 49'ers California John Sutter Niger River Sahara Desert Song Dynasties United States West Africa

Table 12. Civics and Politics Concepts and Vocabulary

Civics and Politics

Responsible and effective citizens understand structures of power and authority and the principles they reflect;

Concepts Concepts derstand: the structure and purpose of government and its relationship to democracy and citizenry how the United States	Vocabulary General:
the structure and purpose of government and its relationship to democracy and citizenry how the United States	General:
the structure and purpose of government and its relationship to democracy and citizenry how the United States	 amendment ancient battle castle checks and balances
of America became an independent country and a democracy citizens of the United States have rights and responsibilities how a political structure of a place benefits its people	 civic duty colony constitution cooperate culture democratic principles direct democracy economy emancipation farm feudalism freedom government inaugural landowners laws leader manor maritime trade medieval physical geography plebeian polis/city-state protect/protection representative democracy representatives rights rule of law rules safety separation of powers settlers statehood timeline
r	and a democracy citizens of the United States have rights and responsibilities how a political structure of a place

Civics and Politics

Responsible and effective citizens understand structures of power and authority and the principles they reflect; their role within a community, a nation, and the world; and develop civic efficacy. Connections to the past and the way governments, principles, and traditions have developed impact current societies.

 UC: Identify ways a person can influence the actions or decisions of a group of people.

- victory
- vote
- western

Specific:

- American Indian
- American Revolution
- Ancient Greece
- Battles:
 - o Lexington
 - o Concord
 - Bunker Hill (Breed's Hill)
 - o Trenton
 - o Princeton
 - o Saratoga
 - King's Mountain
 - o Yorktown
- Benedict Arnold
- Bill of Rights
- British
- Capture of Fort Ticonderoga
- Cumberland Gap
- Emancipation Proclamation (1863)
- Europe
- Francis Marion
- Friedrich Von Steuben
- George Rogers Clark
- George Washington
- Gettysburg Address (1863)
- Greece
- Hessians
- House Divided speech (1858)
- Jackson Purchase
- John Sevier
- Marquis de Lafayette
- Mayflower
- Mayflower Compact
- Middle Ages
- Natchez Trace
- Pilgrim

Civics and Politics	
Responsible and effective citizens understand structures of power and authority and the principles they reflect;	
their role within a community, a nation, and the world; and develop civic efficacy. Connections to the past and the way governments, principles, and traditions have developed impact current societies.	
	Plymouth Colony
	Preamble
	Rocky Mount
	Roman Republic
	Separatists
	Squanto
	 Tennessee
	Treaty of Holston
	US Constitution
	United States
	Valley Forge
	William Blount
	William Bradford

Table 13. History: Change, Continuity, and Context Concepts and Vocabulary

History: Change, Continuity, and Context

Historical events, the processes of change and continuity over time, the context within which events occur, and the significance of the contributions by individuals from various ethnic, racial, religious, and socioeconomic groups impact the development of civilizations and societies around the world.

Grades 6 – 8	Concepts	Vocabulary
AAT: Identify actions the colonists took to protest British taxes (e.g., petitions, boycotts of British goods, chasing British tax collectors out of town). (8.22) • UC: Identify ways a person can advocate for himself or herself. AAT: Identify causes of the Texas War of Independence. (8.59) UC: Identify reasons that cause disputes among groups of people. AAT: Identify how the Underground Railroad helped slaves move northward to freedom. (8.66) • UC: Identify reasons why slaves would want to escape (such as living conditions, family structure, etc.).	Understand: causes of disagreements and conflict between countries and groups of people ways groups of people advocate for rights and freedom importance of people's actions in history importance of leaders to guide change	General: abolitionist boycott colonist escape freedom goods leader petition political protest settlements slaves social tax war Specific: Alamo Benjamin Franklin David Crockett Elihu Embree Francis Wright Frederick Douglass Free Hill, Tennessee Harriet Beecher Stowe Harriet Tubman John Adams John Brown John Brown John Hancock Mercantilism Nashoba Commune Patrick Henry Pontiac's Rebellion Sam Adams Sam Houston Sons of Liberty Texas Texas War of Independence

History: Change, Continuit	y, and Context
Historical events, the processes of change and continuity over tine the significance of the contributions by individuals from various e groups impact the development of civilizations and societies arou	ethnic, racial, religious, and socioeconomic
	 The Boston Massacre (1770) The Boston Tea Party (1773) The Declaratory Act (1766) The Emancipator The Intolerable Acts (1774) The Liberator The Proclamation of 1763 The Quartering Act (1765) The Slave Narratives The Stamp Act (1764) The Townshend Act (1767) Thomas Jefferson Uncle Tom's Cabin Underground Railroad Virginia Hill William Lloyd Garrison

Section VIII

Tactile Maps and Graphics

The maps and graphics guidelines will help create tactile versions of instructional maps, diagrams, models, and timelines to use with students who are blind or deaf-blind. The tactile maps and graphics may be beneficial to other students as well. A tactile graphic is a representation of a graphic (e.g., picture, drawing, diagram, map, etc.) in a form that provides access through touch. It is not an exact copy of the graphic. The section provides basic guidance and links to more comprehensive resources.

Importance of Tactile Maps and Graphics

It is important to provide tactile graphics for young readers (BANA, 2010). It helps students understand and gain information when presented with science and social studies concepts, knowledge, and skills. Science instruction often presents diagrams (e.g., water cycle) and two-dimensional models of living and nonliving things (e.g., model of cell) to teach the related concepts. Social studies instruction often uses maps and timelines to illustrate where and when people existed and events occurred. The following guidance includes information to build upon when creating tactile graphics.

Tactile Graphic Guidance

1. **Determine need for graphic:** When encountering graphics in instructional materials, determine if the graphic is essential to understanding the concept. The Braille Authority of North America (2010)

provides a decision tree to help in this determination. It can be accessed online at www.brailleauthority.org/tg/web-manual/index.html by selecting "Unit 1 Criteria for Including a Tactile Graphic."

- 2. Consult with the local educator trained to work with students with visual impairments.
- 3. **Determine the essential information in the graphic.** Read the surrounding information and the caption to determine which information in the graphic to exclude. For example, a map to illustrate location of key countries would not need state lines and capital cities and may not need all of the surrounding countries.
- 4. **Reduce unnecessary detail in the graphic.** Identify details that are not necessary for interpreting the information in the graphic. For example, a model of the water cycle may show crevices on the mountains, leaves on a tree, and waves in an ocean. Eliminate unnecessary details, as they are difficult to interpret tactilely.
- 5. **Remove frames or image outlines if they serve no purpose.** Ensure that all lines are necessary (e.g., line that indicates a body of water), and remove any that are not.
- 6. **Modify the size of the graphic.** Modify the graphic as needed to reduce clutter and allow a blank space between adjacent textures. Additionally, consider the size of the student's hand.
- 7. **Use solid shapes as feasible.** When solid shapes do not clearly represent the information, use clear solid lines.
- 8. **Systematically teach exploration and interpretation of tactile graphics.** Systematic instruction and repetition are important when teaching a student to understand a tactile graphic. Pairing the tactile graphic with a 3-dimensional object may help (e.g., pair a raised line drawing of a pencil, an example of goods, with a pencil).

Specific Graphic Type Guidance

Following is information for specific types of graphics that may support instruction in science and social studies.

Graphic Organizers/Concept Maps

• It is best to present information to compare or make connections in a tactile graphic. A tactile graphic presents the information in a spatial display and aids in comparison better than a list.

Diagrams/Models

- Limit the number of areas, lines, and labels. Having more than five makes interpretation difficult.
- Consider pairing a tactile graphic with a 3-dimensional model.

Timelines

Present timelines in the same direction every time (i.e., horizontal or vertical).

Maps

- Distinguish water from land using a consistent background texture for the water.
- Align the direction of the compass rose arrows with the lines of longitude and latitude on the map.

Creating Tactile Graphics

Following are some ways to create tactile graphics. Additional information can be found at www.tactilegraphics.org.

Commercial products:

- Capsule paper or swell paper print
- Thermoform

Textured shapes can be made from:

- Sticky back textured papers found at craft stores
- Corrugated cardboard
- Fabric with texture (e.g., corduroy, denim)
- Silk leaves
- Cork
- Felt
- Vinyl
- Mesh tape (used for drywall)
- Sandpaper

Raised lines can be made from:

- Glue (best not to use water-based glue)
- Wax pipe cleaners

Resources

Creating Tactile Graphics, created by the High Tech Center Training Unit, provides basic principles of tactile graphics, characteristics of good tactile graphics, the planning process, guidelines for designs, and more. http://www.htctu.net/trainings/manuals/alt/Tactile_Graphics.pdf

The Texas School for the Blind and Visually Impaired provided basic principles for Preparing Tactile Graphics, element arrangement on a tactile graphic, resources for preparing quality graphics, etc. http://www.tsbvi.edu/graphics-items/1465-basic-principles-for-preparing-tactile-graphics

Perkins School for the Blind has short videos that explain the importance of tactile graphics and information on spatial relationships and graphic literacy, moving from models to graphics, and strategies for reading tactile graphics. http://www.perkinselearning.org/videos/webcast/teaching-tactile-graphics

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Picture Citations

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